

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A method for producing double-crosslinked hyaluronate material, comprising the steps of:

(a) subjecting hyaluronic acid or a salt thereof to a first crosslinking reaction using either an epoxide compound or a carbodiimide compound as a crosslinking agent, and

(b) subjecting the product obtained from step (a) to a second crosslinking reaction using either an epoxide compound as a crosslinking agent if a carbodiimide compound was used as the crosslinking agent in step (a), or using a carbodiimide compound as a crosslinking agent if an epoxide compound was used as the crosslinking agent in step (a), thereby obtaining a double crosslinked hyaluronate material.

2. (original): The method as claimed in claim 1, wherein the epoxide compound is a polyfunctional epoxide compound.

3. (original): The method as claimed in claim 2, wherein the epoxide compound is 1,4-butanediol diglycidyl ether (BDDE), ethylene glycol diglycidyl ether (EGDGE), 1,6-hexanediol diglycidyl ether, polyethylene glycol diglycidyl ether, polypropylene glycol diglycidyl ether, polytetramethylene glycol diglycidyl ether, neopentyl glycol diglycidyl ether, polyglycerol

polyglycidyl ether, diglycerol polyglycidyl ether, glycerol polyglycidyl ether, tri-methylolpropane polyglycidyl ether, pentaerythritol polyglycidyl ether, sorbitol polyglycidyl ether, or a combination thereof.

4. (original): The method as claimed in claim 1, wherein the stoichiometry ratio of hyaluronic acid or a salt thereof to the epoxide compound in the crosslinking reaction is about 1:50 to 1:1 by crosslinking equivalent.

5. (original): The method as claimed in claim 1, wherein the epoxide compound is in a solution with a concentration of about 1 to 30% by weight.

6. (original): The method as claimed in claim 1, wherein the temperature for crosslinking reaction using the epoxide compound as the crosslinking agent is between about 20 and 60°C.

7. (original): The method as claimed in claim 1, wherein the time for crosslinking reaction with the epoxide compound as the crosslinking agent is between 10 minutes and 12 hours.

8. (original): The method as claimed in claim 1, wherein the carbodiimide compound is 1-methyl-3-(3-dimethylaminopropyl)-carbodiimide, 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide, 3-(3-dimethylaminopropyl)-3-ethylcarbodiimide, or a combination thereof.

9. (original): The method as claimed in claim 1, wherein the stoichiometry ratio of hyaluronic acid or a salt thereof to the carbodiimide compound in the crosslinking reaction is about 1:50 to 1:1 by crosslinking equivalent.

10. (original): The method as claimed in claim 1, wherein the carbodiimide compound is in a solution with a concentration of about 0.5 to 30% by weight.

11. (original): The method as claimed in claim 1, wherein the temperature for crosslinking reaction using the carbodiimide compound as the crosslinking agent is between about 20 and 60°C.

12. (original): The method as claimed in claim 1, wherein the time for crosslinking reaction using the carbodiimide compound as the crosslinking agent is between 30 minutes and 12 hours.

13. (original): The method as claimed in claim 1, wherein the hyaluronic acid or a salt thereof is contained in a material.

14. (original): The method as claimed in claim 1, wherein, in step (a), the hyaluronic acid or a salt thereof is preformed into a solution, film, membrane, powder, microsphere, fiber, filament, matrix, porous substrate or gel before undergoing the first crosslinking reaction.

15. (original): The method as claimed in claim 14, wherein the film is formed by placing a solution of hyaluronic acid or a salt thereof with a concentration of about 1 to 20% by weight in a mold and drying at a temperature between 25 and 70°C.

16. (original): The method as claimed in claim 14, wherein the film has a thickness of about 10 to 500 μm .

17. (original): The method as claimed in claim 14, wherein the microsphere is formed by intermittently extruding and dropping a solution of hyaluronic acid or a salt thereof into a coagulant.

18. (original): The method as claimed in claim 14, wherein the microsphere has a diameter of about 2.0 to 0.1 mm.

19. (original): The method as claimed in claim 14, wherein the fiber is formed by extruding a solution of hyaluronic acid or a salt thereof into a coagulant.

20. (original): The method as claimed in claim 1, wherein, in step (b), the product obtained from step (a) is preformed into a solution, film, membrane, powder, microsphere, fiber, filament, matrix, porous substrate or gel before undergoing the second crosslinking reaction.

21. (original): The method as claimed in claim 20, wherein the film is formed by placing the product obtained from step (a) in a mold and drying at a temperature between 25 and 70°C.

22. (original): The method as claimed in claim 20, wherein the film has a thickness of about 10 to 500 μm .

23. (original): The method as claimed in claim 20, wherein the microsphere is formed by intermittently extruding and dropping the product obtained from step (a) into a coagulant.

24. (original): The method as claimed in claim 20, wherein the microsphere has a diameter of about 2.0 to 0.1 mm.

25. (original): The method as claimed in claim 20, wherein the fiber is formed by extruding the product obtained from step (a) into a coagulant.

26. (original): The method as claimed in claim 1, after step (b), further comprising the following step:

(c) washing and drying the double-crosslinked hyaluronate material obtained in step (b).

27. (original): The method as claimed in claim 26, wherein step (c) includes washing and drying at a temperature less than 60°C.

28. (original): The method as claimed in claim 1, wherein the double-crosslinked hyaluronate material is in the form of solution, film, membrane, powder, microsphere, fiber, filament, matrix, porous substrate or gel.

29. (original): A double-crosslinked hyaluronate material produced by the method as claimed in claim 1.

30. (new): The method as claimed in claim 1, wherein the first crosslinking reaction uses the carbodiimide compound as a crosslinking agent, and the second crosslinking reaction uses the epoxide compound as a crosslinking agent.

31. (new): The method as claimed in claim 1, wherein the crosslinking reaction is performed in a mixed solvent including an organic solvent and water.

32. (new): The method as claimed in claim 31, wherein the organic solvent comprises acetone.

33. (new): The method as claimed in claim 31, wherein the organic solvent has a higher volume ratio than the water.

34. (new): The method as claimed in claim 31, wherein the volume ratio of the organic solvent to the water is from 70:30 to 80:20.